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# STUDIES OF AMERICAN PLANTS – VI CYRUS LONGWORTH LUNDELL DIRECTOR, PLANT SCIENCES LABORATORY

THE UNIVERSITY OF TEXAS AT DALLAS

Although the Lundell Herbarium was transferred to The University of Texas at Austin on September 1, 1972 with discontinuance of the operations of Texas Research Foundation on that date, my research continues at Renner under the auspices of The University of Texas at Dallas. A working set of duplicate tropical American material is maintained for my use in studying accumulated collections from the Maya Area. As Adjunct Professor of Botany of The University of Texas at Austin, and Professor of Plant Sciences at Dallas, my research is cosponsored by the two institutions. Wrightia will serve the staffs of both institutions as a botanical journal. The excellent library in systematic botany, accumulated at Texas Research Foundation at Renner, is incorporated in The University Library of The University of Texas at Dallas. It comprises a significant part of The Lundell Collection of The University Library. The Lundell Rare Book Library is housed in the Humanities Research Center of The University of Texas at Austin.

In the identification of collections, primarily those of Percy H. Gentle, Elias Contreras, Eizi Matuda, and my own from British Honduras, Guatemala and Mexico, unnamed material mostly in the Annonaceae, Monimiaceae, Lauraceae, Guttiferae, Rosaceae, Flacourtiaceae, and Myrtaceae has received current attention. Most of the species described or noted in this issue of *Wrightia* are in these families.

### ANNONACEAE

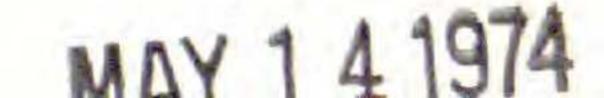
Annona volubilis Lundell, sp. nov. – Frutex scandens, ramulis novellis rufo-tomentosis; folia petiolata, petiolo canaliculato, rufo-tomentoso, 4–7 mm. longo; lamina membranacea, subtus glauca, pilosa, supra glabrata, lanceolata, oblonga vel oblanceolata, 4.5–10 cm. longa, 1.6–3.1 cm. lata, apice acuminata, basi rotundata et acutiuscula, nervi laterales utrinque 8 vel 9; flores solitarii; pedicelli rufo-tomentosi, 5–7 mm. longi; sepala connata, e basi latissima conspicue acuminato-apiculata, rufo-tomentosa; petala 3, crassa, rigida, tomentella, late ovata, ad 1.6 cm. lata, 1.3 cm. longa; stamina 2.8–3 mm. longa, connectivi apice incrassato, muriculato; ovaria adpresse hirsuta, stylis oblongis, ca. 1 mm. longis, muriculatis.

Woody vine, the slender branchlets elongated, enlarged at the nodes, at first rufous-tomentose; leaves alternate, petiolate, the petioles rufoustomentose, canaliculate, 4-7 mm. long; leaf blades membranaceous, green

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above, glaucous beneath, lanceolate, oblong or oblanceolate, 4.5-10 cm. long, 1.6-3.1 cm. wide, apex acuminate or subabruptly acuminate, base rounded, sometimes acutish, the midvein rufous-tomentose, impressed above, elevated beneath, the upper surface glabrous with age, the lower surface persistently pilose, the marginal hairs reddish, the primary lateral veins 8 or 9 pairs, without conspicuous domatia; flowers depressed ovoidpyramidal, up to 2.5 cm. in diam. at anthesis, solitary, the pedicels rufous-tomentose, 5-7 mm. long, with lanceolate bracts up to 2.5 mm. long; sepals 3, connate at base, rufous-tomentose, ovate-rounded, 5-6 mm. wide, about 4 mm. long including acumen, the apex subabruptly apiculate-acuminate; petals 3, thick, up to 1.6 cm. wide, 2 cm. long, finely tomentellous on inside and outside; stamens numerous, 2.8-3 mm. long, the filament about 0.6 mm. long, the connective expanded into a broad hood above pollen sacs, its surface minutely muriculate; carpels numerous, the ovaries hirsute with ascending appressed hairs, bearing thick oblongish styles about 1 mm. long, minutely muriculate; torus rounded, hirsute.

Guatemala: Dept. Peten, La Cumbre, km. 141/142 of Cadenas Road, in high forest, May 14, 1967, *Elias Contreras 6899* (LL, type), vine, flowers greenish.

Referable to the Section Pilannona Safford, this is a remarkable species with affinity to A. acuminata Safford of Panama. Its scandent habit, leaves finely pilose and glaucous on undersurface, short pedicels, and the rufous-tomentose indument of branchlets, pedicels, petioles and leaf midvein are features to be noted. Another related species, A. scandens Diels of Peru has a similar habit, but its leaves are broadly elliptic or obovate, the pedicels are fully twice as long, and it does not have rufoustomentose indument.

✓Cymbopetalum longissimum Lundell, sp. nov. – Arbor parva vel frutex; ramuli novelli pubescentes; folia novella subsericea, petiolata, petiolo crasso, 2–3 mm. longo; lamina subchartacea vel membranacea, oblonga vel lanceolato-oblonga, 12–19 cm. longa, 3–6 cm. lata, basi rotundata et acutiuscula, inaequilatera, apice acuminata, nervi laterales utrinque 12–15; flores solitarii, supra-axillares; pedicelli longissimi, 17–25 cm. longi, penduli; sepala late ovato-rotundata, ad 4.5 mm. longa, 5.5 mm. lata; petala minute adpresse tomentella, exteriora late elliptica vel ovatoelliptica, ad 1.2 cm. longa, interiora crasse carnosa, late elliptica, ad 2.5 cm. longa, 2 cm. lata; stamina ca. 3 mm. longa; monocarpia 3–5, ad 1.3 cm. longe stipitata, oblongo-cylindrica, torulosa, 4–5.5 cm. longa, ad 1.5 cm. diam., glabra.

Arborescent shrub, up to 5 m. tall, 7.5 cm. diam., the branchlets subsericeous with fine short subappressed hairs; leaf buds and tender leaves subsericeous at first; leaves large, petiolate, the petioles subsericeous, thick, 2–3 mm. long, canaliculate; leaf blades subchartaceous, glabrous except along the costa beneath, oblong or lanceolate-oblong, 12–19 cm. long, 3–6 cm. wide, base inaequilateral, rounded, acutish and decurrent on petiole, apex acuminate, the acumen acute and sometimes caudate, the costa prominent and somewhat elevated on both surfaces, the

primary lateral veins slender, 12–15 pairs, reticulation fine but evident on both surfaces; flowers supra-axillary, pendent, with slender elongated pedicels 17–27 cm. long, the pedicels at first rather sparsely subsericeous, glabrous at length except at apex and base; sepals broadly ovate-rounded, up to 4.5 mm. long, 5.5 mm. wide, broadly apiculate, nearly glabrous; outer petals thin, broadly elliptic or ovate-elliptic, up to 1.2 cm. long, the indument appressed, minute; inner petals very thick, involute-cymbiform with apex inflexed, broadly elliptic, up to 2.5 cm. long, 2 cm. wide, the indument appressed, minute; stamens numerous, about 3 mm. long, the apical connective of anthers thick, minutely papillate; carpels densely puberulent; fruits stipitate, oblong-cylindric, up to 1.5 cm. in diam.,

4-5.5 cm. long including slender stipe 1-1.3 cm. long, 4-7-seeded, rounded and sulcate between seeds, glabrescent at maturity.

Guatemala: Dept. Izabal, Puerto Mendez, on San Felipe Road, 7 km. south, in *corozal*, Sept. 12, 1969, *Elias Contreras 9134* (LL, type), shrub, 15 ft. high, 2 in. diam., flowers yellow-green; Puerto Mendez, on Arenales Road, 1 km. NW, in *zapotal*, Sept. 11, 1969, *Contreras 9130* (LL), shrub, 6 ft. high, flowers green; Puerto Mendez, on top of rocky hill in *zapotal*, bordering the village, Aug. 13, 1966, *Contreras 5966* (LL), shrub, 20 ft. high, 2 in. diam., flowers greenish, "anonillo." Dept. Peten: Seamay, in high forest on rocky hill, March 11, 1967, *Contreras 6719* (LL), shrub, 20 ft. high, 3 in. diam., fruit dark green, "anonillo."

C. longissimum has long slender glabrescent pedicels like C. longipes Diels of Brazil and Peru, and is unlike any other species of Mexico and Central America in this feature. Among other differences, the longstipitate glabrous fruits, and leaves with more numerous primary veins further mark the species.

✓Cymbopetalum mayanum Lundell, sp. nov. — Arbor, 13 m. alta, 25 cm. diam., ramulis novellis tomentellis; folia petiolata, petiolo crasso, 1.5–4.5 mm. longo; lamina membranacea, oblonga vel elliptica, 10–26 cm. longa, 5.5–8.5 cm. lata, apice acuminata, basi late rotundata; pedicelli tomentulosi, 4–11 cm. longi; sepala late ovata, 4–6 mm. longa, 5.5–7 mm. lata, minute tomentulosa, apiculata; petala exteriora plana, late ovato-elliptica, ad 2.5 cm. longa, 2.2 cm. lata, minute tomentulosa; petala interiora crassa, cymbaeforma, sulcata, obovato-orbicularia, 2–2.5 cm. longa, 2 cm. lata, minute tomentulosa; stamina numerosa; filamenta ca. 0.5 mm. longa; antherae ca. 3.5 mm. longae, apice truncatae, papillosae; carpella minute tomentella; stigma biloba, carnosa.

Tree, about 13 m. tall, 25 cm. diam., the branchlets finely tomentose; leaf buds appressed pubescent; leaves large, short petiolate, the petioles 2-4.5 mm. long, thickened, pubescent; leaf blades membranaceous, appressed pubescent along the midvein, especially at base on both surfaces, oblong or elliptic, 10-26 cm. long, 5.5-8.5 cm. wide, apex acuminate with obtusish acumen, base inaequilateral, broadly rounded, the costa nearly plane above, elevated beneath, the primary lateral veins slender but conspicuous on both surfaces, 9-12 pairs, the reticulation fine but equally evident on both surfaces; flowers supra-axillary, solitary, the pedicels

slender, tomentulose, up to 11 cm. long; sepals broadly ovate, 4–6 mm. long, 5.5–7 mm. wide, obtusely apiculate, finely tomentulose; outer petals thin, broadly ovate-elliptic, up to 2.5 cm. long, 2.2 cm. wide, usually smaller, minutely tomentulose; inner petals thick, cymbiform, obovateorbicular, up to 2.5 cm. long, 2 cm. wide, mostly smaller, the margin strongly involute, deeply sulcate dorsally and appearing emarginate, the apex obtuse-rounded or rounded and inflexed; stamens numerous, about 4 mm. long including thick filament about 0.5 mm. long, the anthers with truncate minutely papillose thick connective at apex; carpels about 3.5 mm. long, minutely tomentose, the style and stigma large and fleshy, the stigma bilobed; receptacle depressed-globose, hirsute.

Guatemala: Dept. Peten, Tikal, in *ramonal* on main plaza, May 7, 1959, C. L. Lundell 15964 (LL, type), tree, 10 in. diam., 40 ft. high, flowers yellowish.

Two fruiting specimens from Tikal, *Lundell 15499* (LL) and *17137* (LL) have stout rigid supra-axillary pedicels 4–6 cm. long and tomentulose. The fruits are smooth, oblong-cylindric, curved, rounded at apex, 4–6 cm. long, up to 2.4 cm. in diam., tapering at base into a thick stipe 1.5–2.2 cm. long, and tomentulose.

The tree is quite variable in such features as pedicel length, the pedicels varying from 4 to 11 cm. long. This is exceptional in the genus.

In the Lundell Herbarium, C. mayanum is represented by a large series of collections from the wet lowland forest at the base of the Yucatan Peninsula. The tree is common at Tikal. Collections of this species from the area have been referred by Standley and others to C. penduliflorum (Dun.) Baill. The fruits with stout stipes up to 2.2 cm. long, small broadly ovate sepals, and emarginate or rounded inner petals mostly about 2 cm. wide and long are among the differences which well mark C. mayanum as a distinct species.

<sup>v</sup>Desmopsis erythrocarpa Lundell, sp. nov. – Arbor parva vel frutex, ramis gracilibus; ramuli novelli adpresse hirsuti; folia novella sericea, petiolata, petiolo 4–8 mm. longo; lamina membranacea, adulta subglabra, elliptica, lanceolato-elliptica vel obovato-elliptica, 6–17 cm. longa, 2.5– 7.5 cm. lata, basi acuta vel acuminata, apice subabrupte caudatoacuminata; inflorescentia parce adpresse hirsuta; pedicelli 2.5–4.5 cm. longi; sepala ovato-lanceolata, 5–11 mm. longa, acuminata vel caudatoacuminata, parce sericea; petala ad 4 cm. longa, parce sericea; carpella subglobosa vel ellipsoidea, ca. 1.5 cm. longa, stipitata.

Small tree, about 6 m. high, 5 cm. diam., the branchlets slender, the branchlets, petioles and inflorescence at first pubescent, rather sparsely, with subappressed hairs with reddish-brown tinge; leaves at first sericeous on both surfaces, mostly glabrous at maturity with scattered hairs along veins, petiolate, the petioles 4–8 mm. long, canaliculate; leaf blades firmly membranaceous, slightly paler beneath, elliptic, lanceolate-elliptic or obovate-elliptic, 6–17 cm. long, 2.5–7.5 cm. wide, acute or acuminate at base, the apex subabruptly caudate-acuminate, the acute acumen up to 2.5 cm. long, the midvein narrowly impressed above, elevated beneath,

the primary lateral veins slender, arcuately ascending, mostly 8 or 9 pairs; inflorescence extra-axillary, 1–3-flowered, the peduncle very short, up to 2 mm. long, hirsute, the pedicels slender, 2.5–4.5 cm. long, with bractlet below middle; sepals ovate-lanceolate, 5–11 mm. long, acuminate or caudate-acuminate, sparsely pubescent with subappressed hairs; petals linear, expanded at base, up to 4 cm. long at anthesis, about 3.5 mm. in diam. medially, attenuate to apex, rather sparsely sericeous on both surfaces; stamens numerous; stigmas pubescent; fruits nearly glabrous, subglobose or ellipsoid, about 1.5 cm. long at maturity, dark red, conspicuously stipitate, the stipes about 8 mm. long.

Guatemala: Dept. Peten, Cadenas, bordering Rio Sarstun, in high forest of wet land, west of km. 170 of Poptun Road, Aug. 14, 1966, *Elias Contreras 5976* (LL, type), small tree, 20 ft. high, 2 in. diam., flowers yellow-green, "anona." Dept. Izabal, Puerto Mendez, in high forest, bordering Rio Sarstun, 4 km., March 21, 1967, *Contreras 6809* (LL), shrub, 15 ft. high, fruit dark red, "anonilla." Represented further by *Contreras 7808* (LL) from Chahal, Alta Verapaz; *Contreras 5912* (LL), *8973* (LL), 10861 (LL), from Puerto Mendez, Izabal; and, Contreras 6727 (LL), from Cadenas, Peten. I suspect that *D. erythrocarpa* has closest affinity to *D. Galeottiana* (Baill.) Saff. of Mexico, a species with obtuse leaf acumen and much smaller flowers. *D. Schippii* Standl. of British Honduras bears some resemblance, but its leaves obtuse at base and short acuminate, the shorter pedicels and petals, and sepals described as "sepala late ovata obtusa sericea 2.5 mm. longa" by Standley separate it from *D. erythrocarpa*.

Malmea Gaumeri (Greenm.) Lundell, comb. nov. Guatteria Gaumeri Greenman, Field Mus. Bot. 2: 251. 1907.

On the basis of its glabrous branchlets, strictly glabrous tender leaves, mostly subcoriaceous leaf blades, longer pedicels, inflorescence and sepals usually public public with appressed reddish hairs, and petals up to 4.5 cm. long, M. Gaumeri seems distinct from M. depressa (Baill.) R. E. Fries. The buds of M. Gaumeri are public public with reddish hairs, but otherwise, except for the inflorescence and flowers, the species is glabrous.

In some collections, notably *Lundell & Lundell 7432* (LL) from Yucatan and *Gentle 4769* (LL) from British Honduras, the fruits are distinctly mammose apically at maturity. In other collections the fruits are rounded apically, and the significance of this, if any, remains to be determined.

M. Gaumeri, rather than M. depressa, appears to be the species of the Yucatan Peninsula, although the leaves in most collections are much larger than described by Greenman.

Malmea guatemalensis Lundell, sp. nov. – Arbuscula, ca. 7 m. alta, 5 cm. diam., ramulis glabris; folia membranacea, glabra, petiolata, petiolo crasso, 4–8 mm. longo; lamina lanceolata, 12–23 cm. longa, 3–7 cm. lata, basi acuta vel rotundata et acutiuscula, apice attenuata, acuminata, reticulata; inflorescentiae terminales, uniflorae, circ. 3 mm. longe

pedunculatae, parce adpresse hirsutae; pedicelli ca. 1.8 cm. longi; sepala late rotundata, ca. 2 mm. longa, ciliata; petala ciliata, exteriora ovatoelliptica, ca. 1.8 cm. longa, 1.4 cm. lata, apice rotundata, interiora elliptica, 2.3-2.6 cm. longa, 1.3-1.5 cm. lata, stamina ca. 2 mm. longa.

Arborescent shrub, about 7 m. high, 5 cm. in diam., the branchlets slender, glabrous, drying blackish; buds hirsute with appressed reddish hairs; leaves large, glabrous, petiolate, the petioles thick, blackish, canaliculate, 4-8 mm. long, glabrous; leaf blades membranaceous, lanceolate, 12–23 cm. long, 3–7 cm. wide, base acute or rounded and acutish, decurrent, apex attenuate, acuminate, costa elevated and rounded on both surfaces, most prominent beneath, the primary veins slender, 10-12 pairs, nearly horizontal, anastomosing to form veins nearly 1 cm. from margin, the reticulation very open, conspicuous but with very slender veins; flowers terminal, the peduncle about 3 mm. long, with scattered appressed reddish hairs; pedicel about 1.8 cm. long, glabrous, with bracts medially, clavate above, drying blackish; sepals glabrous, broadly rounded, about 2 mm. long, ciliate; petals glabrous, the outer ovate-elliptic, about 1.8 cm. long, 1.4 cm. wide, broadly rounded at apex, the margin thin and sparingly ciliate; the inner petals larger, elliptic, 2.3-2.6 cm. long, 1.3-1.5 cm. wide, ciliate; stamens about 2 mm. long.

Guatemala: Dept. Alta Verapaz, Sebol, in high forest about 3 km. south on old Peten road, April 18, 1964, *Elias Contreras 4408* (LL, type), shrub, 20 ft. high, 2 in. diam., flowers yellow-green.

M. guatemalensis is notable for the peculiar open reticulation of the leaf blades with primary veins mostly horizontal and often angled. No other species of the family in Middle America has been observed with similar leaf venation.

The species may have affinity to M. costaricensis R. E. Fries, known to me only from description.

Malmea leiophylla (Donn. Sm.) Lundell, comb. nov. Duguetia leiophylla Donn. Sm., Bot. Gaz. 20: 281. 1895.

In the genus in Middle America, the "glandular-lepidote" indument of the peduncle, pedicel, and calyx is peculiar to this species. From description M. leiophylla has affinity to M. guatemalensis Lundell.

Why the species was never transferred to *Malmea* by either Fries or Standley is difficult to understand [Fries, Acta Hort. Berg. 10: 320. 1930; and, Standley, Fieldiana: Bot. 24 (pt. 4): 288. 1946]. It is not to be confused with either *M. depressa* (Baill.) R. E. Fries, as referred to that taxon by Fries (Acta Hort. Berg. 12: 538. 1939), or to *M. Gaumeri* (Greenm.) Lundell.

Oxandra belizensis (Lundell) Lundell, comb. nov. Amyris belizensis Lundell, Contr. Univ. Mich. Herb. 6: 32. 1941.

On the basis of its pellucid-punctate leaves, this species, known only from sterile material, was described as an *Amyris*. It appears to be an *Oxandra*. *O. maya* Miranda from Chiapas may be a synonym. However, from Miranda's description, the pubescence of *O. belizensis* does not match that of *O. maya*.

O. guatemalensis Lundell is closely related to O. maya, but differs in its larger elliptic leaves and fasciculate flowers.

A collection from British Honduras, George R. Proctor 30104 (LL), collected April 25, 1969 in high forest, alt. 1600–1700 ft., 2.2 miles southeast of Holec Camp, Chiquibul Forest Reserve, El Cayo District, may represent another closely allied species. It leaves are mostly oblanceolate, and the flowers are solitary with pedicels up to 6 mm. long.

Oxandra guatemalensis Lundell, sp. nov. - Arbor, ramulis novellis puberulis; folia subsessilis; lamina subchartacea, anguste elliptica, 7-13 cm. longa, 2-4.2 cm lata, apice cuspidata, basi acutiuscula vel obtusiuscula, supra glabra, subtus novella pilosa; flores fasciculati, axillares; pedicelli ad 3.5 mm. longi, vestiti; sepala late ovato-rotundata, ca. 1 mm. longa, 1.5 mm. lata; petala 6, anguste elliptica, 5-6 mm. longa, ciliata; stamina 12, subsessilis, 2–2.5 mm. longa; carpella 4 vel 5; ovula 1, erecta. Tree, about 20 m. tall, 30 cm. in diam., the branchlets slender, at first finely pubescent with spreading and subappressed hairs, glabrate; leaf buds finely pubescent with subappressed hairs; leaves punctate, subsessile, the short thickened petioles 1-2 mm. long, pubescent; leaf blades thin, membranaceous or subchartaceous, narrowly elliptic, 7-13 cm. long, 2-4.2cm. wide, apex cuspidate-acuminate, base acutish or obtusish, glabrous above, sparsely pilose beneath, the spreading hairs persistent along the midvein, the midvein elevated beneath, nearly plane above, the veins very slender and inconspicuous; flowers axillary, fasciculate, small, the pedicels and bracts pubescent with fine small subappressed hairs, the bracts ovate, fleshy, about 1 mm. long; pedicels articulate above base, up to 3.5 mm. long; sepals 3, fleshy, broadly ovate-rounded, about 1 mm. long, 1.5 mm. wide; petals 6, elliptic or oblanceolate-elliptic, 5-6 mm. long, ciliate, rather thin; stamens 12, subsessile, 2-2.5 mm. long, the connective extended apically; carpels 4 or 5, sessile, the stigma clavate; ovule 1, erect. Guatemala: Dept. Peten, El Ceibo, about 4 km. on El Repasto Road, on top of hill, March 30, 1965, Elias Contreras 5379 (LL, 'type), tree, about 60 ft. high, 12 in. diam., flowers white, aromatic, "nahuate." The genus Oxandra was reported from British Honduras on the basis of a determination of a sterile collection by R. E. Fries (Field Mus. Bot. 12: 137. 1936), but the genus was omitted from the Flora of Guatemala, with the collection named by Fries referred to Malmea.

### MONIMIACEAE

Mollinedia angustata Lundell, sp. nov. – Arbor parva, 5–6 m. alta, ramulis novellis parce strigillosis; folia subchartacea, petiolata, anguste lanceolata, 8–18 cm. longa, 1.2–2.8 cm. lata, apice acuminata, basi cuneata, subintegra; inflorescentia mascula strigillosa, laxa, multiflora, paniculata; cymae triflorae, pedunculis ad 1.3 cm. longis, pedicellis ad 1.2 cm. longis; receptacula parva, turbinata, strigillosa, 3.5–4 mm. alta, ad 5 mm. diam., lobis ovatis, 1.5–2 mm. longis; stamina 10–15; pedicelli fructiferi ca. 2 cm. longi; drupa stipitata, ellipsoidea, ca. 2 cm. longa, basi strigillosa.

Small tree, 5-6 m. high, up to 10 cm. diam., the branchlets, petioles and midvein on lower leaf surface strigillose at first, rather sparsely so, the branchlets very slender; leaves thin, subchartaceous, glabrous at maturity, linear-lanceolate, 8-18 cm. long, 1.2-2.8 cm. wide, apex slender, long acuminate, base cuneate, the margin subentire or remotely denticulate, the midvein shallowly impressed above, prominent beneath, the numerous lateral veins slender but conspicuous on lower surface, reticulate, obscure above; staminate inflorescences strigillose, laxly many-flowered, paniculate, up to 3 cm. long, the cymes 3-flowered with slender peduncles up to 1.3 cm. long, the filiform pedicels up to 1.2 cm. long; receptacle small, turbinate, strigillose, 3.5-4 mm. high, up to 5 mm. in diam. at anthesis, the lobes subequal, ovate, 1.5-2 mm. long; stamens 10-15; fruiting peduncle about 2 cm. long, the torus elevated, pubescent, the drupes short stipitate, ellipsoid, about 2 cm. long, strigillose at base. Guatemala: Dept. Baja Verapaz, Chilasco, on road to Concepcion, 5 km., on top of hill, July 27, 1971, Elias Contreras 10889 (LL, type), small tree, 15 ft. high, 3 in. diam., flowers yellow-green; Chilasco, in high forest, on Conception Road, Contreras 10925 (LL), small tree, 20 ft. high, 4 in. diam., fruit green.

Mollinedia flavida Lundell, sp. nov. – Arbor parva, 4 m. alta, ramulis glabris; folia flavida, glabra, petiolata, petiolo 4–6 mm. longo; lamina coriacea, anguste lanceolata vel oblongo-lanceolata, 7–14 cm. longa, 1.5–3.3 cm. lata, apice acuminata, basi cuneata, remote denticulata; inflorescentia mascula minute adpresse puberula, multiflora, ad 2.5 cm. longa, pedunculis ad 1 cm. longis, pedicellis ad 6 mm. longis, bracteatis; receptacula mascula turbinata, 5–6 mm. alta, ca. 7 mm. diam., lobis late

ovatis, ca. 3 mm. longis; stamina 24 vel 25.

Small tree, 4 m. high, the branchlets slender, compressed at the nodes, glabrous; leaves firmly coriaceous, drying yellowish, glabrous, petiolate, the petioles 4–6 mm. long, canaliculate, drying blackish; leaf blades narrowly lanceolate or oblong-lanceolate, 7–14 cm. long, 1.5–3.3 cm. wide, apex attenuate, acuminate, base cuneate, the margin minutely and rather remotely denticulate, the midvein and primary veins slightly impressed above, elevated beneath, reticulate, the primary veins 7–9 pairs; staminate inflorescences at first puberulent with minute appressed hairs, drying blackish, up to 2.5 cm. long, the 3-flowered cymes with peduncles up to 1 cm. long, the pedicels up to 6 mm. long; receptacle turbinate, 5–6 mm. high, about 7 mm. in diam. at anthesis, the lobes subequal, broadly ovate, about 3 mm. long; stamens 24 or 25; pistillate flowers and fruits unknown. Mexico: Chiapas, in woods, Cascada, near Siltepec, alt. 1600 m., March 4, 1945, *Eizi Matuda 5117* (LL, type), small tree, 4 m. high.

Mollinedia pallida Lundell, sp. nov. — Arbor parva, 5 m. alta, 7–10 cm. diam., ramulis glabris; folia glabra, petiolata, petiolo 5–7 mm. longo; lamina membranacea, discolor, subtus pallida, anguste lanceolata vel oblanceolata, 7.5–15 cm. longa, 1.5–4 cm. lata, serrulata, apice acuminata vel caudata, basi subcuneata; inflorescentia mascula paniculata, novella puberula; cymae triflorae, pedunculis ad 2 cm. longis, pedicellis ca. 5 mm.

longis; receptacula turbinata, ca. 5 mm. alta, 6 mm. diam., lobis ovatis, acutis; stamina 25; drupa glabra, ad 2 cm. longa.

Small tree, the branchlets glabrous, compressed, very slender; leaves glabrous, petiolate, the petioles slender, 5-7 mm. long, canaliculate; leaf blades thin, membranaceous, narrowly lanceolate or oblanceolate, 7.5-15 cm. long, 1.5-4 cm. wide, apex acuminate or caudate, base subcuneate, margin serrulate, usually with 3-5 conspicuous sharp teeth on each side above middle, sometimes subentire or denticulate, dull above, brownish and pallid beneath, the midvein impressed on upper surface, elevated beneath, the primary lateral veins 8-11 pairs, slender but evident on lower surface; staminate inflorescences terminal, paniculate, the panicles consisting of 3 or 4, 3-flowered cymes, puberulent above at first, the slender peduncles of cymes up to 2 cm. long, the pedicels about 5 mm. long; receptacle turbinate, about 5 mm. high, 6 mm. in diam. at anthesis, essentially glabrous at anthesis, the lobes unequal, the inner larger, the outer ovate, 3-4 mm. long, acutish; stamens 25; pistillate flowers unknown; immature drupes sessile, oblong-ellipsoid, up to 2 cm. long, glabrous; the fleshy torus 5-8 mm. in diam., elevated and rounded, pubescent.

Mexico: Chiapas, Mt. Ovando, December, 1937, *Eizi Matuda 2094* (LL, type), small tree, 5 m. high, 7–10 cm. diam., flowers yellow.

Mollinedia pauciflora Lundell, sp. nov. – Arbor parva, ramulis glabris; folia glabra, petiolata, petiolo 5-8 mm. longo; lamina flavida, subcoriacea, serrulata, lanceolata, oblongo-lanceolata vel oblanceolata, 8-16 cm. longa, 2.5-5.5 cm. lata, apice acuminata, basi subcuneata; inflorescentiae masculae pauciflorae, minute adpresse puberulae, cymosae, pedunculis ad 3 cm. longis, pedicellis 6-10 mm. longis; receptacula mascula late turbinata, 6-8 mm. alta, 8-10 mm. diam., lobis late ovatis, ad 5 mm. longis; stamina 33-35. Small tree, the branchlets glabrous, slender, subcompressed at the nodes; leaves opposite, glabrous, drying yellowish, petiolate, the petioles 5-8 mm. long, canaliculate; leaf blades subcoriaceous, lanceolate, oblonglanceolate or oblanceolate, 8-16 cm. long, 2.5-5.5 cm. wide, apex acuminate or caudate-acuminate, base subcuneate, the margin serrate with 7-9 teeth on each side, the teeth often extending to middle or below, mostly incurved, up to 1.5 mm. long, the midvein shallowly impressed above, elevated beneath, the primary lateral veins slender, 6 to 8 on each side, rather obscure above; staminate inflorescences up to 6 cm. long, bracteate at base, few-flowered, puberulent with fine appressed hairs, the cymes 1-3, 3-flowered, the peduncles slender, up to 3 cm. long, the pedicels 6-10 mm. long; perianth large, appressed-puberulent, turbinate, 6-8 mm. high, 8-10 mm. in diam. at anthesis, the lobes broadly ovate, up to 5 mm., mostly shorter; stamens 33-35; pistillate flowers and fruits unknown.

Mexico: Chiapas, Boqueron, near Motozintla, alt. 2540 m., May 5, 1945, Eizi Matuda 5414 (LL, type), small tree.

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The labelling by Matuda of his collections in 1945 has been a source of confusion. The first four sets of these were purchased, and these are in the Lundell Herbarium, most of the four sets of specimens being mounted and retained for study because of their critical nature. Since I was engaged in new postwar endeavors in Texas, I was unable at the time to provide identifications. Matuda distributed the remaining sets of the duplicates, prefacing the original collections with "1", thus the number of this collection at Field Museum and elsewhere became "15414" rather than "5414", the number of the collection in the Lundell Herbarium.

### LAURACEAE

Licaria clavata Lundell, sp. nov. – Arbor parva, glabra, ramulis gracilibus; folia glabra, subchartacea, petiolata, petiolo 8–10 mm. longo; lamina anguste lanceolata, 7.5–13.5 cm. longa, 2–3.5 cm. lata, basi acuta, apice caudato-acuminata; inflorescentia axillaris, paniculata, pauciflora, 3–7 cm. longa, glabra; tepala crassa, ovata, ca. 1 mm. longa, glabra; stamina 3, libera, hirsuta; ovarium glabrum.

Tree, about 7 m. high, 7.5 cm. in diam.; branchlets slender, glabrous, drying blackish; buds glabrous, black; leaves alternate, thin, subchartaceous, glabrous, petiolate, the petioles slender, canaliculate, drying blackish below, mostly 8-10 mm. long; leaf blades narrowly lanceolate, 7.5-13.5 cm. long, 2-3.5 cm. wide, base acute, apex caudate-acuminate, the acumen slender, up to 3 cm. long, obtusish, midvein slender, elevated on both surfaces, primary veins quite slender, arcuately ascending, inconspicuous but even less so above, the venation fine, reticulate, areolate beneath, inconspicuous above; panicles axillary, very slender, glabrous, drying black, few-branched, few-flowered, 3-7 cm. long, with filiform peduncles 1.5-3 cm. long, the branches of panicles filiform, the flowers umbellate or subcorymbose; pedicels glabrous, slender, elongated, tapering into the perianth tube, giving a clavate appearance to flowers; flowers rounded apically with included anthers at anthesis, the anthers protruding after anthesis; perianth tube obconical, the tepals fleshy, ovate, about 1 mm. long, incurved, the inner slightly smaller, subequal, minutely ciliolate at first, pubescent at base within; stamens slightly connate at base, thick, fleshy, appressed pubescent, 1-1.4 mm. long, larger and extruding postanthesis; anthers broader than long, depressed-triangular, scarcely distinct from filaments, extrorse-apical, only the valves glabrous, staminodia small when present, no glands observed; ovary glabrous, the style equalling stamens; immature cupule thin, with thin obscure double margin, apically pubescent within, the thin margin irregular and ruptured in young fruiting stage.

Guatemala: Dept. Baja Verapaz, Chilasco, in high forest, on Concepcion Road, July 29, 1971, *Elias Contreras 10923* (LL, type), tree 20 ft. high, 3 in. diam., flowers greenish.

L. clavata resembles L. caudata (Lundell) Kosterm., but the latter may be segregated immediately by its minutely and densely punctate leaves. L. clavata is glabrous, except for the pubescence of inner surface of perianth tube and stamens, while L. caudata is pubescent.

Licaria conoidea Lundell, sp. nov. – Arbor parva, ramulis gracilibus; folia chartacea, glabra, petiolata, petiolo 5–8 mm. longo, canaliculato; lamina lanceolata vel anguste oblongo-elliptica, 10.5–20 cm. longa, 3.5–6 cm. lata, basi subcuneata, apice acuminata, nervis 6–8-paribus; inflorescentia paniculata, axillaris, 1–4 cm. longa; pedicelli fructiferi crassi, 1.5–2 cm. longi; cupula verrucosa, usque ad 12 mm. alta, 2.4 cm diam., lenticellata, margine duplice, exteriore usque ad 2 mm. lato, rugoso, interiore erecto, integro, 3–4 mm. alto; fructus ellipsoideus, usque ad 2 cm. longus, 1.4 cm. diam.

Tree, 8–10 m. high, 7.5–10 cm. diam.; branchlets slender, glabrous (in fruit), subterete, lenticellate; young buds hirsute with short appressed

hairs; leaves glabrous, chartaceous, petiolate, the petioles slender, canaliculate and narrowly marginate, mostly 5-8 mm. long, drying blackish; leaf blades lanceolate or narrowly oblong-elliptic, 10.5-20 cm. long, 3.5-6 cm. wide, base subcuneate, narrowly decurrent on the petiole, apex acuminate, the acumen up to 2 cm. long, obtuse, costa and veins elevated on both surfaces, the midvein rather conspicuous, the 6 to 8 primary veins arcuately ascending, quite slender, the venation finely reticulate; fruiting panicles axillary, short, stout, lenticellate, 1-4 cm. long, the peduncles in fruit obscurely pubescent with short appressed hairs; berry ovoid-ellipsoid, smooth, up to 2 cm. long, 1.4 cm. in diam., apex truncate-rounded and depressed; cupule woody, up to 12 mm. deep within, up to 2.4 cm. wide, tapering into the thick enlarged petiole and cone-like, roughly verruculous and lenticellate, with remnants of fine pubescence, the outer margin patent, irregular, rigid, not over 2 mm. thick, inner one thinner, erect, entire, 3-4 mm. high, finely appressed pubescent on inner and outer surfaces; fruiting pedicel enlarged, cone-like, tapering into cupule, 1.5-2 cm.

long.

Guatemala: Dept. Izabal, Puerto Mendez, 19 km. on Rio Dulce Road, in high forest, Sept. 14, 1970, *Elias Contreras 10277* (LL, type), tree, 25 ft. high, 3 in. diam.; Puerto Mendez, 10 km. on Rio Dulce Road, in high forest, Sept. 17, 1970, *Contreras 10290* (LL), tree, 30 ft. high, 4 in. diam. The affinity of *L. conoidea* appears to be with *L. Cervantesii* (H.B.K.)

Kosterm. The large cone-like elongated thick pedicels and cupules are distinctive.

Nectandra capituliforma Lundell, sp. nov. – Arbor, ramis et ramulis dense ferrugineo-tomentosis; folia alternata, tomentosa, chartacea, petiolata, petiolo crasso, 5–8 mm. longo; lamina lanceolata, anguste elliptica vel oblanceolato-elliptica, 7–11 cm. longa, 2.5–4.5 cm. lata, apice acuta vel acuminata, basi rotundata vel late obtusa, nervis 4–6-paribus supra subimpressis subtus elevatis; inflorescentia axillaris, capituliformo-paniculata, tomentosa, longe pedunculata; pedicelli ad 2 mm. longi; stamina ser. I & II ovata, ca. 1.8 mm. longa; stamina ser. III biglandulosa; staminodia stipitata; ovarium glabrum.

Tree, 13–20 m. high, 15–36 cm. diam.; branches and branchlets rather thick, densely velutinous-tomentose with dark brown to ferruginous hairs; leaves alternate, sometimes clustered at apex of branchlets, at first

tomentose on both surfaces with soft fine hairs, chartaceous, petiolate; petioles thick, velutinous-tomentose, mostly 5-8 mm. long; leaf blades tawny, lanceolate, narrowly elliptic or oblanceolate-elliptic, 7-11 cm. long, 2.5-4.5 cm. wide, rounded or broadly obtuse at base, apex acute or acuminate, the veins slightly impressed above with the pubescence persistent along midvein and primary veins, the primary veins 4-6, arcuately ascending, prominent beneath like the midvein; inflorescences slender, axillary or subterminal, tomentose, compactly paniculate, up to 8 cm. long, with short branches, the peduncles elongated, the flowers pubescent, subracemose-capituliform, sometimes subcapitate, the pedicels short, up to 2 mm. long; perianth lobes spreading at anthesis, rather thin, oblong, 2.5-3 mm. long, rounded, cucullate; stamens of two outer series about 1.8 mm. long, pilose at base of short distinct filament, the anthers ovate or subrectangular, with distinct area of connective above arcuate cells, subpetaloid; stamens of inner series with truncate subrectangular anthers, with large fleshy glands longer than filaments; staminodia slender, stipitiform, pubescent, subtriangular apically; ovary glabrous. 'Guatemala: Dept. Baja Verapaz, Union Barrios, in high forest, March 11, 1972, Elias Contreras 11235 (LL, type), tree, 50 ft. high, 15 in. diam., flowers white; Union Barrios, in high forest, March 11, 1972, Contreras 11233 (LL), tree, 60 ft. high, 15 in. diam.; Union Barrios, in high forest on top of hill, March 14, 1972, Contreras 11318 (LL), tree, 40 ft. high, 6 in. diam., flowers white, aromatic, "laurel."

The paniculate inflorescence with long peduncle and short branches, and flowers mostly subcapitate or subracemose-capituliform are distinctive. In leaf form and pubescence the species must resemble *N. Schippii* Allen, but differs in inflorescence and staminal features. The slender staminodia and subpetaloid anthers of outer series with apical connective are rather typical of *Nectandra*.

Nectandra longicuspis Lundell, sp. nov. - Arbor, ca. 16 m. alta, ramulis dense ferrugineo-tomentosis; folia petiolata, petiolo usque ad 5 mm. longo; lamina subchartacea, oblanceolata vel obovata, 10-22 cm. longa, 3-7.5 cm. lata, apice acuminata vel longicaudata, basi emarginata vel rotundata, costa supra impressa et pubescente, subtus elevata et tomentosa, nervis 9- vel 10-paribus supra impressis subtus elevatis et pubescentibus; inflorescentia axillaris, ad 8 cm. longa, tomentosa, paniculata, longipedunculata; flores 6-7 mm. diam., pedicellis pubescentibus, ad 2.5 mm. longis, perianthio glabro, lobis ca. 3 mm. longis, apice papillatis, basi intus pubescentibus; staminibus ser. I et II ovatis, ca. 0.8 mm. longis, ser. III biglandulosis, ca. 1 mm. longis; gynaecio glabro. A tree, about 16 m. high, 20 cm. in diam., the branchlets densely ferruginous-tomentose with rather long often nearly straight hairs; leaves petiolate, the petioles short, thick, tomentose like the branchlets, up to 5 mm. long; leaf blades subchartaceous, oblanceolate or obovate, 10-22 cm. long, 3-7.5 cm. wide, apex subabruptly acuminate or caudate-acuminate, the narrow cusp up to 3 cm. long, base rounded and usually emarginate, pubescent beneath with soft hairs, at first pubescent above, at length

glabrous except along the midvein, the costa and primary nerve impressed above, elevated beneath, the primary lateral nerves 9 or 10 pairs; inflorescences axillary, paniculate, usually 5–8 cm. long, with peduncles 3–4 cm. long, sometimes shorter, pubescent with rather soft hairs; bractlets linear, pubescent; pedicels pubescent, short, about 2.5 mm. long; buds glabrous; flowers 6–7 mm. in diam., the spreading oblanceolateelliptic lobes free nearly to base, about 3 mm. long, papillose apically, pubescent within at base, apex rounded or obtuse; anthers of two outer series about 0.8 mm. long, ovate, with connective well developed apically, the 4 cells arcuate, small, the filaments about 0.4 mm. long, pubescent at base; anthers of inner series fully 1 mm. long, subrectangular, the small glands equalling the short thick pubescent filaments; staminodia, when present, small, triangular; gynaecium glabrous, the thick style subequalling the ovary.

Guatemala: Dept. Izabal, El Estor, in high forest, March 7, 1972, Elias Contreras 11186 (LL, type), tree, 40 ft. high, 8 in. diam., flowers yellowish.

Although resembling *Phoebe helicterifolia* (Meissner) Mez, the species appears to be referable to *Nectandra* with affinity to *N. belizensis* (Lundell) Allen. The oblanceolate cuspidate leaves rounded and emarginate at base, small flowers with short pubescent pedicels, and densely pubescent receptacle are features of *N. longicuspis* which appear to distinguish it. The linear bractlets of the inflorescence persist through anthesis.

N. Schippii Allen, known to me only from description, may be of this relationship. It has elliptic leaves.

Ocotea chrysobalanoides (Lundell) Lundell, comb. nov. Persea chrysobalanoides Lundell, Wrightia 1: 151. 1946.

Ocotea eucymosa Lundell, sp. nov. – Arbor, ramulis glabris; folia alternata, glabra, petiolata, petiolo 4–7 mm. longo, canaliculato; lamina chartacea, subtus reticulata, lanceolata vel anguste elliptica, 9–13 cm. longa, 3–4 cm. lata, basi subcuneata, apice acuminata vel caudatoacuminata, nervis 5–7-paribus; inflorescentia axillaris vel subterminalis, laxe cymoso-paniculata, ad 14 cm. longa, glabra; flores glabri, ad 2.5 mm. longi, pedicellis 2–5.5 mm. longis, gracilibus, perianthio subcampanulato, lobis crassis, ovatis, 1.2–1.7 mm. longis; staminibus ser. I & II ca. 1.5 mm. longis, antheris anguste oblongo-quadratis, ser. III ca. 1.7 mm. longis, filamentis biglandulosis; staminodia parva, stipitiforma; ovarium glabrum.

Tree, about 13 m. high, 20 cm. in diam., glabrous; branchlets slender, drying blackish; buds glabrous, but young leaves with ciliolate margins; leaves alternate, glabrous, chartaceous, the younger drying blackish, petiolate, the petioles slender, canaliculate, 4–7 mm. long; leaf blades lanceolate or narrowly elliptic, 9–13 cm. long, mostly 3–4 cm. wide, base subcuneate and slightly decurrent, apex acuminate or caudate-acuminate, glabrous, domatia conspicuous on lower surface, primary lateral veins

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5–7 pairs, slender but elevated and conspicuous beneath, the upper surface nearly smooth with veins rather obscure, the lower surface with conspicuous reticulation, the midvein elevated beneath, less evident above; inflorescence glabrous, axillary and subterminal, subequalling leaves, cymose-paniculate, slender, with peduncle up to 6 cm. long, openly branched and lax, drying black; pedicel of terminal flower in cyme up to 5.5 mm. long, pedicels of flowers of branches of cyme only 2–3 mm. long; flowers small, glabrous externally, with rather shallow perianth tube about 1 mm. long, not constricted, the lobes thickish, ovate, 1.2–1.7 mm. long, nearly erect at anthesis; stamens of two outer series about 1.5 mm. long, the small oblong-rectangular anthers only slightly longer than the thick filaments, the inner series of stamens up to 1.7 mm. long, similar, with two sessile glands at base, the glands shorter than filaments, the staminodia slender, stamens and staminodia finely pubescent at base; ovary glabrous, the style tapering, the stigma punctiform.

Guatemala: Dept. Baja Verapaz, Union Barrios, in high forest on top of hill, March 10, 1972, *Elias Contreras 11215* (LL, type), tree, 40 ft. high, 8 in. diam., flowers yellow-green, "laurel."

Although of possible affinity to *O. cernua* (Nees) Mez, the cymose inflorescence raises doubts as to this relationship. The small glabrous flowers with narrow anthers subequalling filaments and the punctiform stigma are notable. The dull and nearly smooth upper leaf surface contrasts markedly with the reticulate venation beneath.

Ocotea viridiflora Lundell, sp. nov. – Arbor parva, glabra, ramulis gracilibus; folia alternata, parva, glabra, petiolata, petiolo 5-7 mm. longo, canaliculato; lamina membranacea, lanceolata, 5-8.5 cm. longa, 2-2.4 cm. lata, basi revoluta, acuta, apice caudato-acuminata, subtus reticulata; inflorescentia axillaris, pauciflora, racemosa, ca. 3.5 cm. longa, glabra; pedicelli ad 7 mm. longi; flores ad 3 mm. longi, lobis ovatis, 2.5 mm. longis, glabris; stamina ser. I & II ca. 2 mm. longa; ser. III basi biglandulosa; ser. IV staminodia stipitata, strigulosa; ovarium glabrum. Small tree, glabrous, the branchlets slender, drying blackish; leaves small, alternate, membranaceous, petiolate, the petioles slender, canaliculate, (4) 5-7 (8) mm. long, drying blackish; leaf blades whiteciliate in bud, entirely glabrous otherwise, lanceolate, 5-8.5 cm. long, 2-2.4 cm. wide, revolute and decurrent at base, acute, the apex caudateacuminate, the slender acumen obtusish, finely but conspicuously reticulate beneath, shining and more openly reticulate above, the costa nearly plane above, elevated beneath, the primary lateral veins 6 or 7 pairs, very slender, elevated beneath; inflorescences axillary, few-flowered, racemose, about 3.5 cm. long, glabrous, drying blackish, up to 7 mm. long; flowers greenish, drying blackish, glabrous outside, the perianth lobes patent, thin, glabrous, ovate, 2.5 mm. long, equal, the obtuse apex obscurely ciliolate; stamens of ser. I & II scarcely 2 mm. long, the anthers 4-celled, ovate, emarginate, equalling the slender filaments; ser. III with two large subsessile glands at base, the filaments strigulose, the anthers 4-celled, emarginate; staminodia of ser. IV very slender, stipe-like and

strigulose when present; ovary ovoid, glabrous, the style slender, 1 mm. long, shorter than ovary, the stigma discoid, conspicuous.

Panama: Chiriqui, on trail to Cerro Horqueta, in cloud forest, alt. 6000-6500 ft., May 15, 1971, George R. Proctor 31916 (LL, Type), small tree, mostly sterile; flowers greenish, fragrant.

Apparently related to O. Klotzschiana (Nees) Hemsley of Mexico, O. viridiflora differs in having glabrous short petioled leaves without axillary glands, glabrous flowers on pedicels up to 7 mm. long, and anthers subequalling filaments.

Persea guatemalensis Lundell, sp. nov. – Arbor ad 23 m. alta; ramuli angulares, striati, ad apicem albo-strigulosi; folia parva, chartacea, petiolata, petiolo canaliculato, 1.5-2.5 cm. longo; lamina lanceolata, elliptica vel obovato-elliptica, 7-12 cm. longa, 3-5 (6.5) cm. lata, basi revoluta, acutiuscula, apice acuta vel apiculato-acuminata, novella utrinque subsericea, supra glabrata, utrinque areolata, subtus glauca, costa supra impressa, venis primariis 5-7-jugis; inflorescentiae longe pedunculatae, axillares et subterminales, cymoso-paniculatae; pedicelli ad 1 mm. longi; flores dense albo-strigulosi; perianthii segmenta exteriora late ovata, 3.5-4 mm. longa, ca. 3.2 mm. lata, utrinque dense albo-strigulosa; perianthii segmenta interiora subaequalia, utrinque dense albo-strigulosa; ser. I, II & III filamenta pubescentia; ser. IV staminodia sagittata, pubescentia; gynoecium puberulum.

Tree, about 23 m. high, 45 cm. in diam.; branchlets drying black, angled and striate, minutely and finely strigulose like the petioles and inflorescence; leaves mostly small, chartaceous, petiolate, the petioles 1.5-2.5 cm. long, slender, canaliculate, drying black; leaf blades lanceolate, elliptic or obovate-elliptic, 7-12 cm. long, 3-5 (6.5) cm. wide, base revolute, acutish, apex acute or apiculate-acuminate, subsericeous at first, glabrous early above, areolate on both surfaces, glaucous beneath, costa impressed above, elevated beneath, the primary veins 5-7 pairs, very slender, not conspicuous on either surface, arcuately ascending; inflorescences subterminal and axillary, up to 16 cm. long, the peduncles up to 11 cm. long, the panicles cymose-like, white strigulose; flowers subsessile, white strigulose-tomentellous, the outer perianth segments broadly ovate, 3.5-4 mm. long, about 3.2 mm. wide, about equalling the inner, pubescent on both surfaces like the inner, the inner perianth segments acutish; filaments of stamens of ser. I & II about 1.6 mm. long, stout, pubescent, the anthers slightly shorter, glabrous above; filaments of stamens of ser. III stout, pubescent, the small glands subsessile, subbasal, the anthers quadrilocular, equalling filaments, glabrous; staminodia of ser. IV sagittate, strigulose dorsally; gynoecium pubescent, the ovary tapering into the slender puberulent style 2 mm. long; stigma capitate. Guatemala: Dept. Baja Verapaz, Chilasco, Tierra Caliente, 15 km., in high forest on rocky hill, Aug. 3, 1971, Elias Contreras 10943 (LL, type) tree, 70 ft. high, 18 in. diam., flowers greenish, "aguacatillo de montana." P. guatemalensis has affinity to P. rigens Allen, P. pallida Mez & Pittier, and P. cinerascens Blake, all of which have much larger leaves and gynoecium glabrous.

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Persea rufescens Lundell, sp. nov. – Arbor, 5-6 m. alta, ramulis atro-rubescentibus glabrescentibus, apice foliosis; folia glabra, subverticillata, petiolis rubescentibus 1.5–2.5 cm. longis; lamina coriacea, lanceolata vel oblongo-lanceolata, ad 21 cm. longa, 6 cm. lata, apice attenuato-subacuminata, costa utrinque elevata, nervis 10-11-paribus; inflorescentia paniculata, ad 15 cm. longa, minute tomentella; pedicelli fructiferi crassi, 2-3 mm. longi, tomentelli; flores brevipedicellati, perianthio minute tomentello, lobis ovatis pubescentibus exterioribus 2 mm. longis et latis, interioribus 2.3 mm. longis; staminibus ser. I & II 2.5 mm. longis, antheris oblongis, quam filamentis pubescentibus duplo longioribus, ser. III 3 mm. longis, filamentis pubescentibus aequalibus biglandulosis; staminodiis ser. IV 1.8 mm.; fructus globosus, ad 1.8 cm. diam. Tree, 5-6 m. high; branches subterete, stout, lenticellate, drying reddish, glabrate; branchlets rather slender, striate, glabrate; leaves glabrous, crowded at apex of branchlets, the apical internodes very short, the petioles rather rigid, some slender, canaliculate, mostly 1.5-2.5 cm. long; leaf blades thickly coriaceous, shining above, drying reddish-brown, slightly paler beneath, lanceolate or oblong-lanceolate, 11-21 cm. long, 3-6 cm. wide, apex tapering into broad acumen, the acumen obtusish, base acute, decurrent, very obscurely areolate on both surfaces, the costa broad, reddish and rounded above, similar beneath but broader and more conspicuous, the slender primary veins 10 or 11 pairs, equally visible on both surfaces but inconspicuous; inflorescences subterminal and axillary, narrowly paniculate, up to 15 cm. long, the lower branches of panicle falling early giving a long-peduncled appearance, the panicles finely tomentellous, glabrate below; pedicels of fruits thick, 2-3 mm. long, lenticellate, finely tomentellous; flowers finely tomentellous, the perianth lobes pubescent on both surfaces, the outer rather sparsely, subequal, rigid, ovate, 2-2.3 mm. long, fully 2 mm. wide; stamens of ser. I & II 2.5 mm. long, the 4-celled anthers subequalling the stout pubescent filaments; stamens of ser. III 3 mm. long, the filaments pubescent, only slightly longer than anthers, the two glands subsessile, attached above base of filament about one-third; staminodia of ser. IV 1.8 mm. long, sagittate, the filament pubescent; perianth patent, persistent; fruits globose, drying up to 1.8 cm. in diam., shiny.

Mexico: Chiapas, in virgin forest, Boqueron, near Motozintla, alt.
2540 m., May 4, 1945, *Eizi Matuda 5394* (LL, type), tree, 15–18 m. high.
The flowers are described from dried remains in the inflorescence. P. *rufescens* appears to be related to P. Standleyi Allen, differing notably in leaf characteristics.

### SAXIFRAGACEAE

Phyllonoma cacuminis Standl. & Steyerm., Field Mus. Bot. 22: 334. 1940.

Guatemala: Dept. Baja Verapaz, Chilasco, in high forest, 6 km. east, on Concepcion Road, July 27, 1971, *Elias Contreras 10900* (LL), small tree, 25 ft. high, 5 in. diam., flowers greenish.

Fine material is available now from Baja Verapaz, and P. cacuminis is a remarkably distinct species. Notably, the inflorescence consists of fascicles of 4-6 slender few-flowered lax cymes up to 1.8 cm. long with peduncles two-thirds the length of cymes. The thin minutely serrulate leaves further distinguish it. Through the courtesy of Dr. Lorin I. Nevling, Jr., I have examined the type (F), the only collection heretofore of the tree.

Two collections of P. laticuspis (Turcz.) Engler, Contreras 4995 (LL), 5001 (LL), both from Cerro de La Cruz near Nebaj in the Department of El Quiche, extend the range of that species in Guatemala.

### ROSACEAE

Licania guatemalensis Lundell, sp. nov. - Arbor, ca. 30 m. alta, 1 m. diam., ramulis glabris; folia alterna, glabra, petiolata, petiolo usque ad 5 mm. longo; lamina chartacea, basi glandulosa, late elliptica, 10-21 cm. longa, 5.5–9.5 cm. lata, apice subabrupte acuminata, basi rotundata et acutiuscula, utrinque reticulata, venis 8-10-jugis; inflorescentia terminalis, cymoso-paniculata, usque ad 13 cm. longa, multiflora, minute tomentosa; pedicelli ad 1 mm. longi; calycis tubus campanulatus, ca. 2 mm. longus, minute tomentosus; sepala ca. 1 mm. longa, acuta; petala parva, albo-tomentosa, ea. 1.2 mm. longa; stamina 14 vel 15, glabra; filamenta 1.5-1.8 mm. longa; ovarium tomentosum; stylus ca. 4 mm. longus.

Tree, about 30 m. high, 1 m. in diam., the branchlets slender, brown, subterete, glabrous; the stipules triangular, about 1.2 mm. long; leaves alternate, glabrous, subsessile, the thick petioles usually less than 5 mm. long, broadly canaliculate; leaf blades chartaceous, with glands at base, broadly elliptic, 10-21 cm. long, 5.5-9.5 cm. wide, apex subabruptly short acuminate, base rounded and acutish, reticulate veined on both surfaces, the midvein nearly plane above, prominent and elevated beneath, primary lateral veins 8 to 10 pairs, rather slender but conspicuous on both surfaces; inflorescence terminal, cymose-paniculate, up to 13 cm. long, whitish-tomentulose, the tomentum minute; flowers tomentose, short pedicellate, the pedicels up to 1 mm. long; hypanthium and calyx 2.8-3 mm. long, the hypanthium campanulate; sepals small, ovate-triangular, up to 1 mm. long, acute, reflexed at apex; petals white-tomentose, very small, short stalked, suborbicular or elliptic-obovate, about 1.2 mm. long, fugacious; stamens 14 or 15, borne at apex of hypanthium; filaments glabrous, slender, 1.5-1.8 mm. long, united at base; anthers small; ovary free at base of hypanthium, tomentose; style basilar, slender, about 4 mm. long; stigma small, capitate-punctiform.

Guatemala: Dept. Izabal, in high forest, between Seja and Fronteras

on Peten-Guatemala Road, May 6, 1971, Elias Contreras 10742 (LL, type), tree, 90 ft. high, 36 in. diam., flowers greenish-white. Probably related to L. platypus (Hemsl.) Fritsch, but distinct in having mostly subsessile broadly elliptic leaves, smaller sepals, tomentose petals scarcely half as large, fewer stamens, and a tomentose ovary.

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Licania mexicana Lundell, sp. nov. – Arbor parva; ramuli novelli adpresse floccoso-tomentosi; folia alterna, novella utrinque adpresse floccosa, glabrata, petiolata, petiolo 1.5-4 mm. longo, incrassato, ruguloso; lamina coriacea, utrinque reticulato-venosa, lanceolata vel anguste oblongo-elliptica, 6.5-13 cm. longa, 2.5-4.5 cm. lata, apice acuta, attenuata, basi acuta; inflorescentia terminalis, anguste paniculata, 2-3.5 cm. longa, pauciflora, minute floccosa et tomentosa; pedicelli ad 1 mm. longi; calycis tubus campanulatus, ca. 3 mm. longus, intus adpresse pilosus; sepala ca. 1 mm. longa, acuta; stamina 14 vel 15; filamenta libera ca. 1.5 mm. longa, glabra; ovarium glabrum; stylus 4 mm. longus. Tree, up to 10 m. high, 15 cm. in diam., the branchlets slender, rigid, subterete, finely floccose at first with appressed tomentum, glabrous early; stipules narrowly triangular, rigid, up to 2 mm. long, acicular; leaves alternate, finely appressed floccose on all surfaces at first, glabrous early, coriaceous, short petiolate, the petioles 1.5-4 mm. long, thickened and rugose; leaf blades lanceolate or narrowly oblong-elliptic, 6.5-13 cm. long, 2.5-4.5 cm. wide, apex acute, attenuate, base acute, slightly decurrent, conspicuously but finely reticulate-veined on both surfaces, the primary lateral veins 6-8 pairs, slender, the midvein rounded and elevated on both surfaces; inflorescence terminal, very narrowly paniculate, 2-3.5 cm. long, the primary branches only 1-3 mm. long, finely floccose and minutely tomentose; pedicels short, up to 1 mm. long; the hypanthium and calyx finely floccose and minutely tomentose; the hypanthium campanulate, about 3 mm. long, pilose within with appressed hairs; sepals triangular, about 1 mm. long, attenuate, acute, reflexed at anthesis; no petals found; stamens 14 or 15; filaments equal, glabrous, about 1.5 mm. long, united at base into distinct tube; anthers small;

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ovary essentially glabrous, the hairs few and scattered; style basilar, slender, glabrous, 4 mm. long.

Mexico: Sinaloa, along arroyo, between Rancho Del Pino and Chele, May 11, 1943, C. L. Lundell 13023 (LL, type), tree, 6 in. diam., 30 ft. high.

L. mexicana has affinity to L. retifolia Blake, a species described as having glabrous branchlets and leaves, longer petioles, a pyramidal inflorescence with numerous flowers, a smaller hypanthium, and longer filaments. The small narrow panicles and floccose indument, as well as subsessile larger leaves, are distinctive features of L. mexicana.

### GUTTIFERAE

Clusia uniflora Lundell, sp. nov. – Arbor parva, glabra, ramulis crassis; folia coriacea, petiolata, petiolo crasso, canaliculato, 3–4 mm. diam., ad 2 cm. longo; lamina oblanceolata vel oblanceolato-elliptica, 9–15 cm. longa, 4.5–6.5 cm. lata, apice late rotundata, basi late cuneata; inflorescentia uniflora, breviter pedunculata, pedunculo crasso, 3–8 mm. longo; bracteae crassae, carinatae, late ovatae, ad 8 mm. longae; sepala crassa, late ovata, ad 1.5 cm. longa, 2 cm. lata, rotundata; capsula 1, subglobosa, sulcata, ca. 15-locularis.

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Small tree, glabrous, the branches thick; leaves decussately opposite, rather crowded at apex of branchlets, distinctly petiolate, the petioles thick, canaliculate, 3-4 mm. in diam., up to 2 cm. long; leaf blades drying rigidly coriaceous, oblanceolate or oblanceolate-elliptic, 9-15 cm. long, 4.5-6.5 cm. wide, apex rounded, base broadly cuneate, decurrent on petiole, the midvein elevated and prominent beneath, nearly plane above, the very slender veins numerous, ascending at a very wide angle, evident but inconspicuous on both surfaces; fruits solitary at apex of branchlets, subsessile, the thick peduncle 3-8 mm. long, usually thicker than long, the conspicuous bracts coriaceous, broadly ovate, up to 8 mm. long, carinate, acute; sepals coriaceous, depressed ovate-orbicular, up to 1.5 cm. long, 2 cm. wide, broadly rounded, the inner largest; fruit depressed-globose, the immature up to 2.5 cm. long, 3 cm. wide, about 15celled, deeply ribbed with flattened stigma borne on each rib up to 1 cm. from apex of fruit, the fruits deeply sulcate to apex between stigmas; stigmas large, thick, flattened, ovate, tapering to apex, forming ring up to 2 cm. in diam. Guatemala: Dept. Peten, La Cumbre, east of km. 140 of Cadenas Road, in high forest on top of rocky hill, July 28, 1969, Elias Contreras 8869 (LL, type), small tree, 25 ft. high, 5 in. diam., with yellow latex. With its solitary terminal nearly sessile fruits, peculiar fruits usually 15-celled and with 15 ribs deeply sulcate to apex, and with ring of large flat stigmas up to 2 cm. in diameter, C. uniflora is unlike any other of the region. The leaves resemble those of C. Pringlei Lundell.

### FLACOURTIACEAE

Casearia belizensis Standl., Field Mus. Bot. 12: 412. 1936; Fieldiana: Bot. 24(7): 90. 1961.

Guatemala: Dept. Izabal, Puerto Mendez, km. 9 on Toquela Road, in high forest, June 12, 1970, Elias Contreras 10027 (LL), 10030 (LL), tree, 40-60 ft. high, 6–15 in. diam.; km. 10 on Toquela Road, in high forest, June 12, 1970, Contreras 10036 (LL), tree, 90 ft. high, 18 in. diam.; km. 26 on Rio Dulce Road, Cienaga, in high forest, Sept. 20, 1970, Contreras 10316 (LL), 10319 (LL), 10328 (LL), tree, 35-60 ft. high, up to 15 in. diam., flowers white; km. 28 on Rio Dulce Road, bordering Rio Sehila, Sept. 21, 1970, Contreras 10322 (LL), 10324 (LL), 10326 (LL), tree, 55–75 ft. high, 12–15 in. diam.

The small fruits of C. belizensis are deeply sulcate with three rounded lobes. This clearly separates the species from C. javitensis H.B.K. var. myriantha (Turcz.) L. Wms. which does not appear to be even related. William (loc. cit.) considered C. belizensis a possible pubescent phase of C. javitensis.

Casearia Guidonia (Swartz) Lundell, comb. nov. Laetia Guidonia
Swartz, Prodr. Veg. Ind. Occ. 83. 1788; Zuelania Guidonia (Swartz)
Britton & Millsp., Bahama Fl. 295. 1920.
In the fine material available, represented by Elias Contreras 8449
(LL) from Dos Lagunas, Dept. of Peten, Guatemala, the style is quite

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thick but distinct. If *Casearia spiralis* J. R. Johnston (*Zuelania belizensis* Lundell), with its numerous stamens and short thick style, is to be kept in *Casearia*, then the transfer of this species is in order.

Casearia tacanensis Lundell, Lloydia 4: 54. 1941; Fieldiana: Bot. 24 (7): 93. 1961.

Mexico: Chiapas, Volcan de Tacana, alt. 1000-2000 m., Aug. 1938, Eizi Matuda 2441 (MICH, type); Santa Rosa, near Escuintla, alt. 1600 m., in virgin forest, June 20, 1941, Matuda 4245 (LL), tree, 10 m. high; Mt. Ovando, near Escuintla, Nov. 14, 1945, Matuda 6151 (LL).

Guatemala: Dept. Alta Verapaz, Sebol, in high forest, ca. 2 km. east of the village, May 2, 1964, Elias Contreras 4578 (LL), small tree, 5 in. diam., 25 ft. high. Dept. Peten, Seamay, bordering Arroyo Seamay, Mar. 5, 1967, Contreras 6650 (LL), tree, 60 ft. high, 8 in. diam., flowers greenish and aromatic; La Cumbre, km. 145 of Cadenas Road, May 15, 1971, Contreras 6917 (LL), tree, 40 ft. high, 8 in. diam. Dept. Izabal, Puerto Mendez, on Rio Dulce Road, km. 15, in low forest, May 20, 1970, Contreras 9858 (LL), small tree, 15 ft. high, 3 in. diam.; between Seja and Fronteras, on Peten-Guatemala Road, in high forest, May 8, 1971, Contreras 10752 (LL), tree, 45 ft. high, 10 in. diam.; same locality, Contreras 10574 (LL), tree, 50 ft. high, 8 in. diam. That this distinctive rain forest tree remained uncollected until 1938 and undescribed until 1941, in spite of activities in this region by some of the most voracious collectors of the century, points up again the limited extent of our knowledge of the flora of the tropical forests of North America.

The Guatemalan collections are less publication than those of Chiapas, and show considerable variation. The pale tomentose fruits, usually tuberculate, well mark the species.

### MYRTACEAE

Calyptranthes mammosa Lundell, sp. nov. – Frutex omnino glaber, ramulis novellis bicarinatis; folia breviter petiolata, petiolo crasso, 2.5– 3.5 mm. longo; lamina parva, coriacea, lanceolato-oblonga vel oblanceolata, 2–4.5 cm. longa, usque ad 1.5 cm. lata, apice obtusa, basi acutiuscula; inflorescentiae numerosae axillares et ad apices ramorum fasciculatae foliis breviores, 3-florae, raro 1- vel 5-florae, 1.5–3 cm. longe pedunculatae; pedicelli 0.5–2 mm. longi; calyx in alabastro ellipsoideus, apice mammosus; fructus subglobosus.

A shrub up to 6 meters high, entirely glabrous even in early growth stages except for reddish hairs on the vegetative buds; branchlets slender, obscurely bicarinate below the apical nodes; leaves coriaceous, paler beneath, lanceolate-oblong or oblanceolate, 2–4.5 cm. long, up to 1.5 cm. wide, narrowed to the obtuse apex, base acutish, the midvein plane or elevated above, when elevated a medial groove sometimes present at base, the midvein elevated beneath, the primary veins very slender, often obscure above, the glands very small and inconspicuous on both surfaces; petioles drying darker than blade, shallowly canaliculate, rather rugose,

stout, 2.5-3.5 mm. long; inflorescences axillary, fasciculate, rigid, shorter than the leaves, 1.5-3 cm. long in flower, 3-flowered, very rarely 1- or 5flowered, entirely glabrous, the flower buds with short pedicels 0.5-2 mm. long, pedicels accrescent, longer in fruit; flower buds ellipsoid or obovoid, mammose apically, glabrous; fruits subglobose, about 7 mm. in diam. when dry, crowned by collar about 1.3 mm. high, 3 mm. in diam.

Guatemala: Dept. Peten, La Cumbre, Chacalte Arriba, km. 155 of Cadenas Road, in high forest on riverbank, Feb. 20, 1971, Elias Contreras 10572 (LL, Type), shrub, 15 ft. high, 3 in. diam., fruit dark red, "guayabillo." Also, Contreras 10562 and 10566 from same locality collected on Feb. 19, 1971.

C. mammosa is related to C. hondurensis Standl., but differs from this and species of this affinity in its predominantly 3-flowered short rigid inflorescences often fasciculate in the leaf axils. The small leaves of C. mammosa are lanceolate-oblong to oblanceolate, with midvein elevated to nearly plane above, rarely somewhat sulcate near the base. In flower the buds are short-pedicellate, the pedicels accrescent and longer in fruit.

Like C. Aguilarii Standl. & Steyerm., the shrub is entirely glabrous except for the vegetative buds. After a study of the types of C. Aguilarii and C. belizensis (Standl.) Lundell, I can not agree with McVaugh [Fieldiana: Bot. 24(7): 299. 1963] in his disposition of these species as synonyms of C. hondurensis.

Eugenia eustipitata Lundell, sp. nov. – Arbor, ramulis glabris; folia glabra, petiolata, petiolo 7-11 mm. longo; lamina coriacea, lanceolatooblonga vel anguste elliptico-oblonga, 7.5-10.5 cm. longa, 2-3.5 cm. lata, apice subacuminata, obtusa, basi acutiuscula, costa supra impressa; inflorescentia axillaris, tomentosa, racemosa, usque ad 4 mm. longa; pedicelli 3.5-6 mm. longi; bracteolae late rotundatae, ca. 0.4 mm. longae; fructus stipitatus, tomentosus, subglobosus, usque ad 1.5 cm. diam.; sepala ovato-elliptica, ca. 3 mm. lata, 3.5 mm. longa, tomentosa; discus ca. 3 mm. diam. A tree, about 16 meters high, 25 cm. in diam., branchlets glabrous, compressed at first, vegetative buds pubescent with short hairs; leaves entirely glabrous, petiolate, the petioles canaliculate, 7-11 mm. long; leaf blades coriaceous, green above, drying brownish on lower surface, lanceolate-oblong or narrowly elliptic-oblong, 7.5-10.5 cm. long, 2-3.5 cm. wide, apex subacuminate and obtuse or obtuse, base acutish and decurrent, costa elevated beneath, impressed above the entire length of blade, primary veins very slender and rather obscure on both surfaces, 17-22 pairs; inflorescences axillary, short racemose, the axis scarcely evident or up to 4 mm. long, tomentose with fine hairs; pedicels of fruits rigid, tomentose, 3.5-6 mm. long; bracteoles very short, ca. 0.4 mm. long, broadly rounded, free; fruits finely tomentose, conspicuously stipitate, the stipes 2-3 mm. long, subglobose, up to 1.5 cm. in diam.; sepals ovate-elliptic, rounded at apex, up to 3 mm. wide, 3.5 mm. long, subequal, finely pubescent on both surfaces; disk in fruit fully 3 mm. in diam.

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Guatemala: Dept. Izabal, Puerto Mendez, on Rio Dulce Road, 9 km., in *zapotal*, Jan. 10, 1970, *Elias Contreras 9991* (LL, type), tree, 50 ft. high, 10 in. diam., "guayabillo."

Of probable affinity to E. toledinensis Lundell, E. eustipitata differs in its glabrous leaves and branchlets, costa of leaves deeply impressed above, more numerous and less evident lateral veins, pedicels longer, and fruits conspicuously stipitate.

Myrciaria mexicana Lundell, sp. nov. – Frutex, ramulis minute puberulis; folia petiolata, petiolo minute puberulo, 3.5–6 mm. longo; lamina subchartacea, pellucido-punctata, lanceolata, 4–6.5 cm. longa, 1.2–2.3 cm. lata, basi acuta, apice acuminata, cuspidata, costa supra minute puberula; flores subsessiles; bracteolae parvae; fructus globosus, usque ad 1.4 cm. diam.

An arborescent shrub 4 m. high, the branchlets slender, densely puberulent with minute antrorse hairs; leaves small, thin, subchartaceous, petiolate, the petioles very slender, 3.5–6 mm. long, puberulent with antrorse hairs, shallowly canaliculate; leaf blades dark green, concolorous, pellucid-punctate, lanceolate, widest at or near the middle, 4–6.5 cm. long, 1.2–2.3 cm. wide, base acute, apex acuminate, cuspidate, midvein elevated on both surfaces, puberulent above, glabrous or nearly so beneath, the blade glabrous, veins numerous, slender, rather obscure; fruit subsessile in leaf axils, the bracteoles small, less than 1 mm. long; fruit globose, drying 1.4 cm. in diam., with elevated conspicuous glands, glabrous.

Mexico: Veracruz, Tepezingo, Municipio de Huatusco, alt. 1245 m., January 20, 1972, F. Ventura A. 4796 (LL, type), arbusto de 4 m. de alto; fruto morado, tiene hueso; tallo liso; abundante.

In appearance M. mexicana looks much like M. Ibarrae Lundell, a species of the lowlands of Peten, Guatemala. It differs markedly in having leaves acute at base, and in its public ence of very minute antrorse hairs. M. Ibarrae has leaves mostly rounded at base and it is uniformly hispidulous-public ence with rather coarse bristle-like erect or antrorsely crisped hairs up to 0.5 mm. long.

### MYRSINACEAE

Gentlea mexicana (Lundell) Lundell, comb, nov. Ardisia mexicana Lundell, Wrightia 3: 77. 1963.

G. mexicana resembles G. McVaughii (Lundell) Lundell, also of Jalisco, but may be recognized at once by its slender longer merely canaliculate petioles. In G. McVaughii the leaf blade is decurrent and the petiole is conspicuously marginate to base.